

CLAIMS

What is claimed is:

- 5 1. An active circuit for being coupled to a reactive circuit that provides an output voltage, comprising:

 a control regulator circuit having an output for providing pulses;

 a first switch that has an input coupled to the output of the

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 controlled regulator, a power supply input coupled to a power supply terminal, and an output that is an output of the active circuit;

 a pulse shaper having an input coupled to the control regulator and an output;

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 a reference voltage generator for providing a reference voltage that changes in response to changes in a voltage at the power supply terminal; and

 an integrator having a first input coupled to the output of the pulse shaper, a second input for receiving the reference voltage, and an output for providing a signal indicative of a current level supplied at the output voltage.

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2. The active circuit of claim 1, further comprising a Schmitt Trigger having an input coupled to the output of the integrator and an output.

3. The active circuit of claim 1, wherein the reference voltage generator is responsive to a first programming signal in addition to being responsive to the voltage at the power supply terminal.

5 4. The active circuit of claim 3, wherein the reference voltage generator is responsive to a second programming signal.

5. The active circuit of claim 3, wherein the first programming signal is representative of the output voltage.

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6. The active circuit of claim 5, wherein the first programming signal is the output voltage.

7. The active circuit of claim 1 further comprising a crowbar switch coupled
15 to the control regulator circuit and a crowbar comparator coupled to the crowbar switch.

8. The active circuit of claim 1, wherein the pulse shaper comprises:

20 a first transistor having a control electrode coupled to the output of the control regulator circuit, a first current electrode coupled to the output of the first switch, and a second current electrode; and

25 a first resistor having a first terminal coupled to the second current electrode of the first transistor and a second terminal coupled to the power supply terminal.

9. The active circuit of claim 1, wherein the integrator comprises:

a voltage-to-current converter having a first input coupled to the
output of the pulse shaper, a second input to the output of
the reference voltage generator, and an output; and
5 a capacitor coupled to the output of the voltage-to-current
converter.

10. The active circuit of claim 1, wherein the first switch comprises an N
channel transistor.

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11. A method of operating an active circuit as a portion of a switching
regulator, comprising:

providing current pulses of a first type based on a supply voltage for use
in providing an output voltage;

15 providing voltage pulses representative of the shape of the first type of
current pulses;

providing a reference voltage that is related to the supply voltage and an
indication of the output voltage;

20 generating current pulses of a second type based on a comparison of the
reference voltage and the voltage pulses; and

integrating the current pulses of the second type to generate a signal
indicative of a current level supplied at the output voltage.

12. The method of claim 11, wherein the integrating is performed by a
25 capacitor from which current is removed and into which current is supplied
during the integrating.

13. An active circuit, comprising:

pulse means for generating current pulses from a supply voltage for use
in providing a DC output voltage;

5 replication means, coupled to the pulse means, for generating pulses
representative of the current pulses;

reference means for providing a reference voltage based on information
as to the DC output voltage and the supply voltage;

10 comparator means, coupled to the replication means and the reference
means, for generating current pulses, wherein each pulse has an
amount of charge related to the reference voltage; and
a capacitor for receiving the current pulses.

14. The active circuit of claim 13, further comprising a Schmitt Trigger
15 coupled to the capacitor.

15. The active circuit of claim 13, wherein the information as to the DC
output voltage is a first programming signal.

20 16. The active circuit of claim 15, wherein the reference means is responsive
to a second programming signal.

17. The active circuit of claim 13, wherein the information as to the DC output
voltage is the DC output voltage.

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18. The active circuit of claim 13 further comprising a crowbar switch coupled to the pulse means and a crowbar comparator coupled to the crowbar switch.

5 19. The active circuit of claim 13, wherein the replication means comprises:
a transistor coupled to the pulse means; and
resistor means for being coupled between the transistor and the
supply voltage.

10 20. The active circuit of claim 13, wherein the reference means comprises three current sources and a resistor.